AMENDMENT UNDER 37 CFR § 1.111
Serial No. 10/677,223

## AMENDMENTS TO THE SPECIFICATION

Please amend paragraphs [0001], [00025] and [00026] of the Specification as follows:

[0001] This application is ~~based on, and claims priority under 35 U.S.C. §119(e)~~ a Continuation-in-Part of Applicant's co-pending United States Patent Applications Nos. ~~10/262,944 , filed October 3, 2002;~~ 10/307,466 filed December 2, 2002; and 10/405,236 filed April 3, 2003. This application also claims priority of International Patent Application No. PCT/CA03/01044 filed July 11, 2003.

[0025] For the purposes of understanding the present invention, it is useful to consider a representation of the total optical E-field E(t) as a vector confined to a plane and emanating from a fixed origin, where the length of the vector gives the amplitude of the E-field at any instant (t), and the direction of the vector gives the phase of the field at any instant (t). Within this construction, we consider two basis sets. The first basis set is a Cartesian coordinate system centered on the E-field origin. In this Cartesian representation, the total E-field E(t) is decomposed along the orthogonal In-Phase (I) and Quadrature (Q) direction. The second basis set is a polar coordinate system, again sharing its origin with that of the E-field vector. In this polar representation, the E-field is decomposed into vector length (S) and phase angle ($\phi$) relative to the I direction. These two basis sets are related by a non-linear transformation, in a manner well known in the art. In each of these representations, the time-sequence of loci of the end-point of the E-field vector is referred to as a trajectory of the E-field.

[0026] As shown in FIG. 3, a system in accordance with the present invention comprises a complex driver circuit 20 and a conventional "dual branch" MZ interferometer 4 of the type described above with reference to FIG. 1b. In operation, the complex driver circuit 20 generates a pair of independent drive signals $V_R(t)$ and $V_L(t)$, which are used to drive a respective branch 22 of the MZ interferometer 4. This operation is designed to exploit the optical behaviour of the "dual branch" MZ interferometer, which is characterized by a respective independently controllable phase shifter 24 in each branch 22. With this configuration, conventional amplitude modulation of the CW carrier 6 is obtained by driving each phase shifter 24 with respective equal and opposite drive signals 10. This differential pair of drive signals produces corresponding equal and opposite phase delays experienced by light traversing the two branches 22a, b of the modulator 4, via the well known electro-optical effect. The optical power of the recombined lightwave (communications signal) 8 emerging from the MZ modulator 4 varies sinusoidally with the phase angle between the beams traversing ~~to~~ the two branches 22.

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